



# MOWHAWK



## **COMMANDER** **OPERATOR'S MANUAL**

Konig Industries, LLC

[www.mowhawk.com](http://www.mowhawk.com)

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USA

# Commander Operator's Manual

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## Scope of This Manual

This manual provides basic operating and maintenance procedures for the Konig Industries Commander mower. Please carefully read and understand the Operator's Manual in its entirety before operating the mower.

## Customer Service

For technical support, please visit [www.Mowhawk.com](http://www.Mowhawk.com).

### **Evaporative Emissions Control System Warranty**

The evaporative emission control system is warranted for two (2) years. If any evaporative emission-related part on your equipment is defective in material or workmanship, the part will be repaired or replaced by Konig Industries, LLC.

Your evaporative emission control system may include parts such as: fuel tanks, fuel lines, fuel line fittings, fuel caps, carbon canisters, canister mounting brackets, carburetor purge port connection, filters, vapor hoses, clamps, control valves, control solenoids, electronic controls, vacuum control diaphragms, purge valves, liquid/vapor separator and other associated components.

# Commander Operator's Manual

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## Table Of Contents

1.0	General Information.....	5
1.1	Introduction .....	5
1.2	Warranty Registration .....	5
1.3	Parts and Service.....	5
2.0	Safety Information .....	6
2.1	Safety Callouts.....	7
2.2	Safe Operating Procedures .....	8
2.3	Servicing the Mower .....	12
2.4	Safety Decals .....	13
3.0	Operation .....	21
3.1	Controls.....	22
3.2	Steering and Deck Controls.....	24
3.3	Safety Start Interlock System .....	26
3.4	Engine Starting.....	27
3.5	Stopping the Engine .....	28
3.6	Moving the Mower with Stalled Engine .....	29
4.0	ROPS (Roll Over Protection Structure).....	30
5.0	Mower Operation.....	37
5.1	Driving the Mower .....	37
5.2	Deck Clutch Operation .....	45
5.3	Deck Cutting Height Adjustment.....	46

# Commander Operator's Manual

---

5.4	Anti-Scalp Wheels .....	47
6.0	Maintenance .....	49
6.1	Safe Servicing Practices.....	49
6.2	Service Introduction.....	49
6.3	Torque Values.....	50
6.4	Tires.....	51
6.5	Lubrication .....	52
6.6	Electrical System .....	52
6.7	Hydraulic System.....	53
6.8	Control System .....	55
6.9	Engine Air Filter.....	60
6.10	General Engine Maintenance.....	62
6.11	Mower Blade Maintenance .....	64
6.12	Steering Control Lever Adjustment.....	68
6.13	Maintenance Record.....	72
7.0	Troubleshooting .....	73
8.0	Storage .....	77
8.1	General Mower Preparation for Storage .....	77
8.2	Preparation of the Engine for Storage .....	78
8.3	Preparation of Battery for Storage.....	79
8.4	New Season Preparation.....	80

# Commander Operator's Manual

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## 1.0 General Information

### 1.1 Introduction

Congratulations on your purchase of the Konig Commander! This manual is provided to assist in operating and maintaining your new mower. The owner and/or operators of the mower must read this manual carefully before operating the machine. The operation and maintenance information provided in this manual will help to ensure years of service from your Konig mower.

The owner/operator's responsibilities include, but are not limited to, the following:

1. Read and understand the Operator's Manual in its entirety before beginning operation.
2. Review and understand all safety and operating decals (refer to Section 2.0 "Safety Information").
3. Ensure operators are properly trained and physically able to safely operate the mower.
4. Understand that, as the operator of the mower, you are responsible for your own safety and that of any bystanders as well as the mower and any property in the area of operation.

### 1.2 Warranty Registration

To activate your warranty the mower must be registered. Contact your dealer with any questions regarding the warranty.

### 1.3 Parts and Service

Use only Konig or Konig-approved replacement parts for your mower. Replacement parts may be ordered from your Konig dealer. When ordering parts, please provide the following:

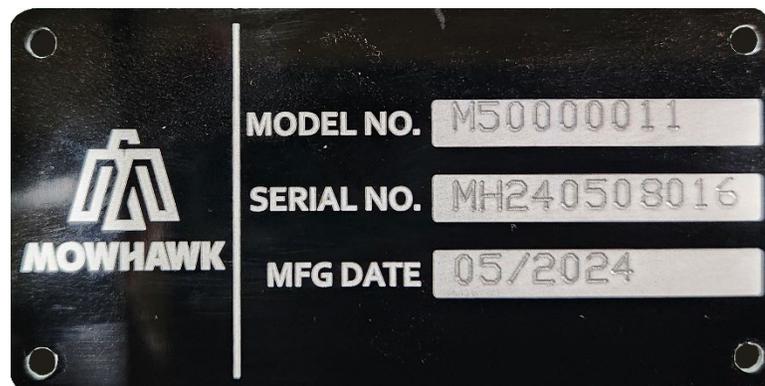
# Commander Operator's Manual

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1. Part Number
2. Part Description
3. Model Number
4. Serial Number (Refer to Figures 1-1 and 1-2)



*Figure 1-1: Location of the Serial Number Plate*



*Figure 1-2: Serial Number Plate*

## 2.0 Safety Information

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# Commander Operator's Manual

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Please read and understand all warnings and operating instructions before using the mower. Always follow basic safety precautions to reduce the risk of personal injury. Improper operation, maintenance, or modification of the mower could result in serious injury and/or mower damage. The Konig Commander is designed to cut grass on lawns which are flat or gradually sloped (refer to Section 2.2.5 "Operating on a Slope"). The mower should not be modified and/or used for any purpose for which it was not designed.

The information herein is provided for safe operation of the mower.

## 2.1 Safety Callouts

Please review and heed the following safety signs and callouts:

### DANGER

*An imminently hazardous situation which, if not avoided, will result in death or serious injury.*

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### WARNING

*A potentially hazardous situation which, if not avoided, could result in death or serious injury.*

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### CAUTION

*A potentially hazardous situation which, if not avoided, may result in death or serious injury.*

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# Commander Operator's Manual

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## NOTE

*A helpful tip from Konig Industries.*

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## 2.2 Safe Operating Procedures

If not used carefully and according to the safety instructions provided herein, the mower could cause serious injury or death. Always adhere to all safety instructions.

## WARNING

*Never allow children or untrained personnel to operate the mower. Only operators properly trained with the mower and who have read and understood all safety instructions should operate the machine.*

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### 2.2.1 Prior to Operation

1. Survey the area to be mowed prior to operation and determine what accessories or attachments may be needed to safely complete the job. Do not modify the mower and use only Konig-approved accessories and attachments.
2. Inspect the mowing area for hazards such as rocks, metal objects, and any other debris that might cause damage, become entangled, or be thrown if struck by the mower blades. Note the location of large holes or depressions which might damage or upset the mower.
3. Only operate the mower during the daytime or in an adequately lighted area.
4. Do not operate the mower during inclement weather or if there is a risk of lightening.
5. Always secure the ROPS in the raised position.

# Commander Operator's Manual

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6. Always buckle the seat belt before beginning operation.
7. Follow routine maintenance checklists (refer to Section 6 "Maintenance"). Verify all hoses and bolts are secure before operation.

## 2.2.2 Personal Safety

1. Always wear long pants and safety shoes while operating the mower. Do not wear shorts.
2. Do not wear sandals or athletic shoes.
3. Do not wear loose-fitting clothing or jewellery which might be entangled in moving parts.
4. Always wear adequate ear protection. Prolonged exposure to mower noise could cause loss of hearing.
5. Do not wear headphones or earbuds while operating the mower. Avoid all distractions to safely operate the mower.
6. Always wear safety glasses or goggles during operation.
7. Do not operate the mower if fatigued, ill, under the influence of alcohol or drugs, pregnant, or under eighteen (18) years of age.
8. Take regular breaks to avoid fatigue.
9. Operators sixty (60) years of age or older are statistically more likely to be involved in mower-related accidents and injuries. Operators over sixty (60) years of age should evaluate their ability to safely operate the mower.

## 2.2.3 Operating the Mower

1. Never leave the mower unattended when it is running.
2. Do not leave the operator seat without:
  - Stopping on level ground.
  - Disengaging the deck clutch.
  - Placing the steering handles in the neutral position.

# Commander Operator's Manual

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- Stopping the engine.
  - Removing the ignition key.
  - Waiting for the engine and all moving parts to come to a complete stop.
  - Engaging the park brake by pulling on the park brake handle.
3. Always halt operation and inspect the mower for damage when striking a foreign object. Repair any damage before continuing operation.
  4. Always remain seated during operation.
  5. Turn off the mower blades when not in use.
  6. Do not remove safety shields or covers while operating the mower.
  7. Do not operate the mower if the discharge chute is raised, damaged, or altered.
  8. Never place hands or feet under the mower while it is in operation.
  9. Turn off the mower before removing the grass catcher or clearing the discharge chute.
  10. Do not use your hand to clear the discharge chute.
  11. Remove any flammable material before operating the mower.
  12. Keep the engine compartment clean.
  13. Ensure engine and exhaust areas are free from debris or glass clipping which might pose a fire hazard.
  14. Do not change the engine governor setting. Operating the mower at excessive speeds may lead to damage or personal injury.
  15. Avoid sudden or severe movement of the steering levers which could cause the mower to tip or otherwise cause injury.
  16. Slow down before making turns. Do not attempt to manoeuvre the mower at high speeds.
  17. Ensure there are no bystanders or debris behind the mower before backing up.
  18. Do not mow in reverse.
  19. Maintain a safe distance from bystanders and pets while mowing.
  20. Do not discharge material toward people and avoid discharging toward a wall or other obstruction.

# Commander Operator's Manual

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21. Be careful when approaching blind corners, fences, shrubs, or any object which might obscure hazards or bystanders.
22. Disengage the mower blades before crossing gravel surfaces.
23. After operation, allow the engine to cool before placing the mower in storage.
24. Do not leave the mower unattended without removing the ignition key.

## 2.2.4 Use of a Ramp

1. Use caution when loading or unloading the mower with a ramp.
2. Only use a full width ramp. Do not use separate ramps for the left and right tires.
3. Do not exceed a 15-degree angle between the ramp and the ground.
4. Move slowly on the ramp.

## 2.2.5 Operating on a Slope

### **WARNING**

*Only operate the Konig mower on slopes of 15-degrees or less. Use extra caution when mowing on any slope. Slopes frequently contribute to tip-overs and loss-of-control accidents which can cause severe injury or death.*

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1. Use extra caution while turning on a slope. Turn slowly and gradually.
2. Turn uphill when possible to maximize traction.
3. Do not start or stop the mower on a slope.
4. Disengage the mower blades if the mower tires lose traction.
5. Avoid operating the mower on a slope within ten (10) feet of ditches, drop-offs, retaining walls, embankments, water, or other hazards.

# Commander Operator's Manual

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6. Mowing on wet grass could cause loss of traction and control of the mower.
7. Never attempt to stop or stabilize the mower by placing your foot on the ground.
8. The ROPS may reduce the chance of injury or death in the event of a rollover. Ensure the operator seat belt is fastened, the ROPS is raised and secured, and the retaining pins are properly installed.

## **WARNING**

*Failure to properly use the seat belt in conjunction with the ROPS could result in serious injury or death in the mower is involved in a roll-over accident.*

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## 2.3 Servicing the Mower

### **CAUTION**

*Unless specifically required for the task, shut off the mower engine when conducting maintenance or performing adjustments.*

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1. Prior to conducting maintenance:
  - Read and observe all safety warnings in this manual.
  - Park the mower on level ground.
  - Disengage the deck clutch.
  - Place the steering handles in the park position.
  - Lower the deck.
  - Verify the mower is shut off.

# Commander Operator's Manual

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- Remove the key from the ignition.
  - Disconnect the negative battery cable.
2. When working on the deck, verify the engine cannot be accidentally started.
  3. Verify the mower is safely supported on jacks before working underneath the deck.
  4. Do not remove the mower deck unless inspecting or changing the belt.
  5. Always wear eye protection.
  6. Replace worn or damaged blades. Do not attempt to weld, bend, or otherwise repair damaged blades.
  7. Mower blades are sharp and may cause injury. Always wear gloves or wrap blades before handling.
  8. Maintenance or repairs which require the engine to be running should only be performed by trained personnel.
  9. Be careful not to touch mower components which may still be hot.
  10. Use caution when removing belts or other components with spring tension.
  11. Do not tamper with safety devices.
  12. Only use Konig or Konig-approved replacement parts.
  13. Avoid contact with battery acid. Acid can damage clothing and cause serious injury to the skin or eyes.
  14. Do not charge the battery near an open flame.
  15. Observe gasoline handling precautions.
    - Do not smoke while refuelling.
    - Do not refuel the mower while the engine is running.
    - Promptly clean up gasoline spills.
    - Keep gasoline away from open flames or other sources of ignition.
  16. Do not refuel the mower indoors.
  17. Store gasoline only in approved containers.

## 2.4 Safety Decals

# Commander Operator's Manual

Decals provide operators with easily visible safety warnings and operating instructions. Do not remove or alter the decals. Please replace any decal if it becomes illegible or is destroyed.

It is the responsibility of the owner and/or operators to read and understand all decals before operating the mower.



## Thrown Objects

Maintain a safe distance from bystanders and pets when mowing.

Do not operate the mower with the side deflector raised unless the grass catcher attachment or mulching system is in use.

Rotating Blades, Pulleys, and Belts – Always keep shields and covers in place during operation.

Keep hands, feet, and loose clothing a safe distance from rotating pulleys and belts.



## Fire Warning

Clean flammable material from the mower before starting. Always clean up spilled fuel and oil.

# Commander Operator's Manual

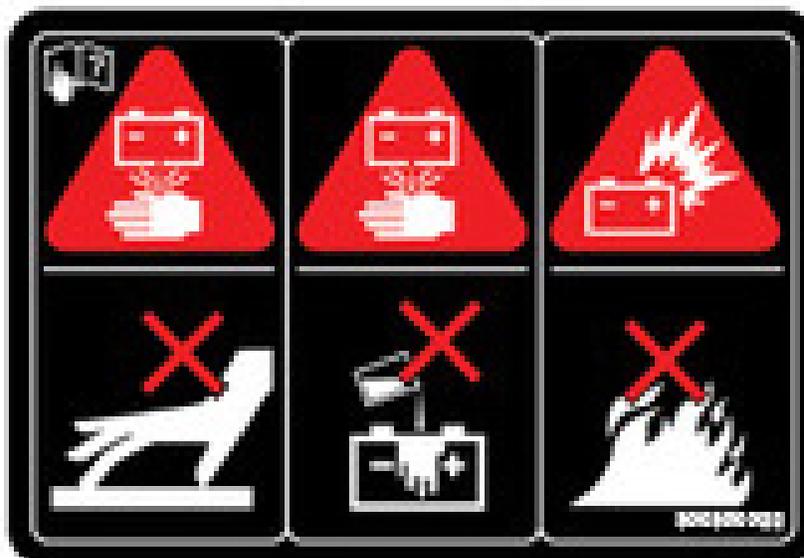


## Thrown Objects

Maintain a safe distance from bystanders and pets during operation.

Rotating Blades, Pulleys, and Belts – Always keep shields and covers in place during operation.

Keep hands, feet, and loose clothing a safe distance from rotating pulleys and belts.



Avoid contact on skin with battery acid.

The battery requires no maintenance. Do not attempt to add fluid.

Do not charge the battery near an open flame. Hydrogen gas within the battery is flammable and may

# Commander Operator's Manual

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explode if exposed to an open flame.

Read the description for each decal in the Operator's Manual before beginning operation.

## Rollover Warning

Use the seat belt.

Keep the ROPS raised and locked.

Do not jump from the mower in event of rollover.

Do not remove the ROPS.

Do not operate the mower without the ROPS in the raised position.

Lower the ROPS only when necessary for safe clearance. Raise the ROPS again immediately.

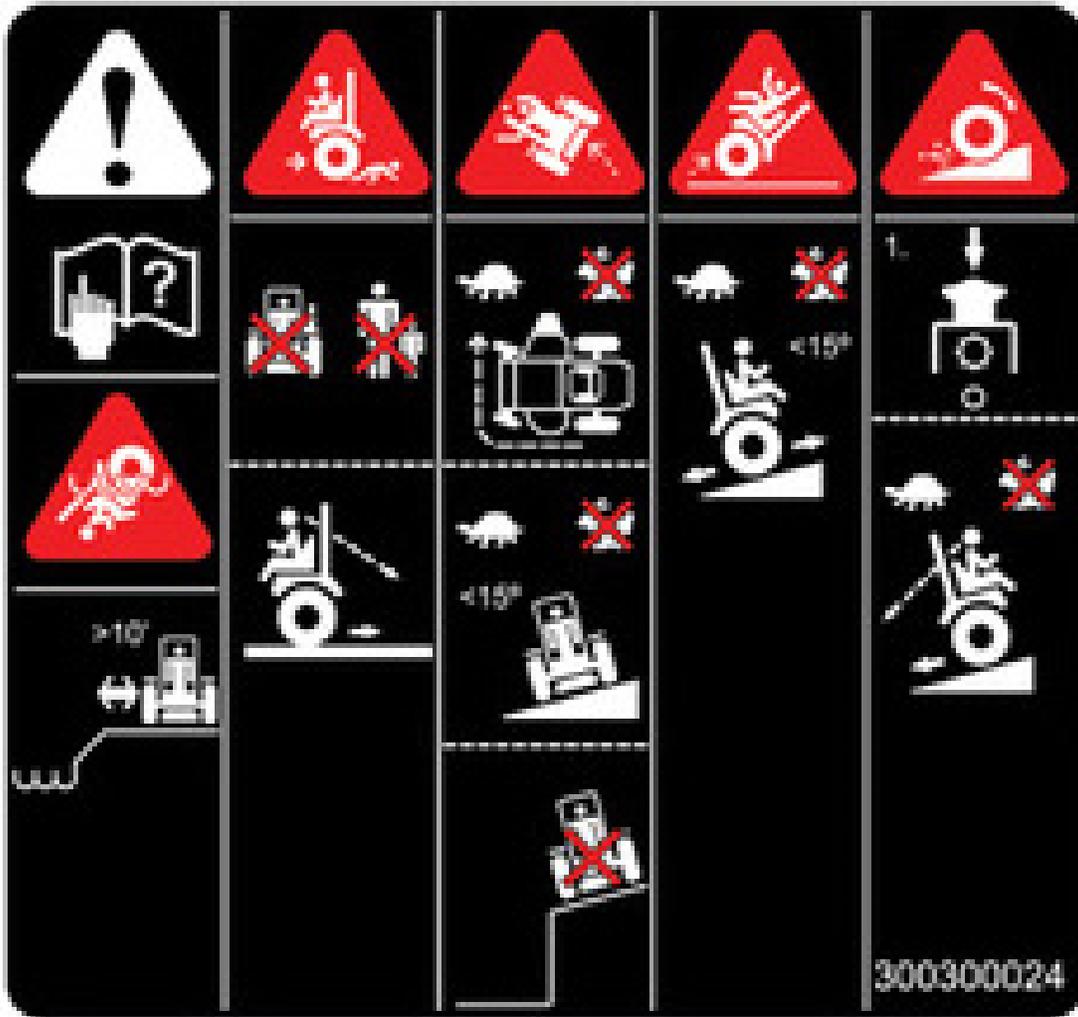
Do not wear the seat belt when the ROPS is in the lowered position.



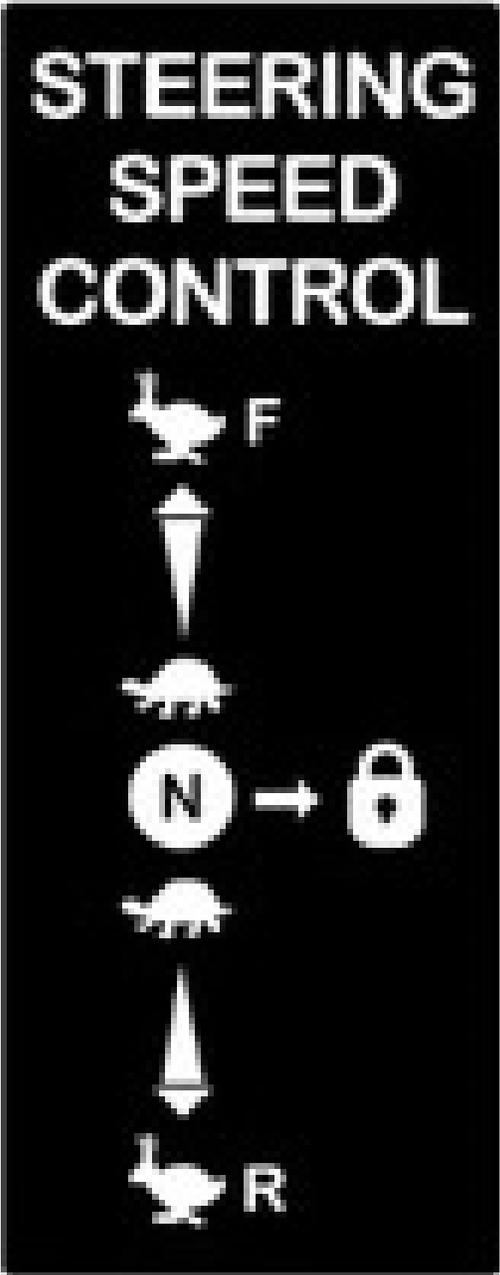
Ejection Warning

Do not attempt to tow the mower by the ROPS. The mower may tip and throw the operator.

# Commander Operator's Manual



Read the description for each decal in the Operator's Manual before beginning operation.	Back-up Warning  Check surroundings for people or animals.	Roller Warning  Turn slowly to avoid rollover.  Do not operate on slopes over 15 degrees.	Ejection Warning  Do not operate on slopes over 15 degrees.	Loss of Traction Warning  Shut off blades.
Do not operate within 10 feet of water.	Check behind before reversing.	Do not operate near drop-off.	Drive slowly up or down slopes.	Reverse slowly down slope when loss of traction occurs.



Steering Speed Control Right  
(Left Control Reversed)

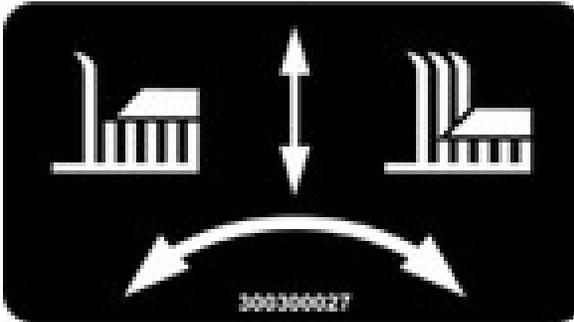
Forward Slow (Turtle) to Fast (Rabbit)

Neutral (Park)

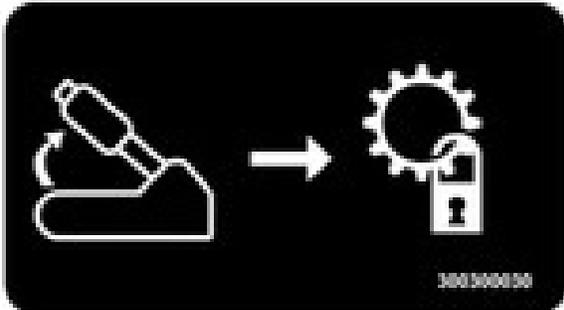
Reverse Slow (Turtle) to Fast (Rabbit)

# Commander Operator's Manual

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Turn Knob to Adjust Cutting Height



Raise Parking Brake Handle to Lock  
Transmission

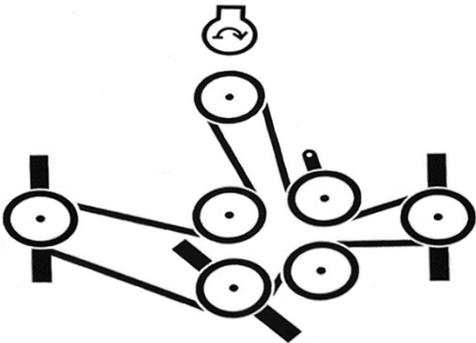
**This power lawn mower  
is manufactured in  
accordance with the  
applicable ANSI B71.1 or  
B71.4 standard.**

300300025

American National Standards Institute  
(ANSI) Declaration

# Commander Operator's Manual

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Deck Belt Routing

300300009

# Commander Operator's Manual

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## 3.0 Operation

### 3.1 Controls



1. **PTO Switch** - The “Power Takeoff” Switch engages and disengages the deck blades. Pull the switch up to engage and push the switch down to disengage.

# Commander Operator's Manual

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- 2. Hour Meter** – Indicates the number of hours the ignition switch has been in the ON position.

## NOTE

*The Hour Meter will accumulate hours if the ignition switch is left ON while the engine is not running.*

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- 3. Ignition Switch** – A three (3) position switch: OFF, RUN, and START. With the key inserted, rotate it clockwise to the START position; release the key when the engine starts and the switch will automatically return to the RUN position.
- 4. “Before Starting the Engine” Decal** – Read the *Operator's Manual*, Disengage the Mower Blades, and Place the Mower in the Park Position.
- 5. Oil Pressure Light** – This light will illuminate when the ignition switch is placed in the RUN position and remains lit until the engine is running and a safe oil pressure is achieved. If the light illuminates during operation, shut the engine off immediately then locate and correct the problem.
- 6. Malfunction Light (Engine Light)** – This light will illuminate when there has been an engine malfunction on mowers with electronic fuel injected engines. Refer to the Engine Owner's Manual for details.
- 7. Engine Speed Control** – Controls the engine speed. Turn the dial clockwise to increase RPMs; move the dial counterclockwise to decrease the RPMs.
- 8. USB Charge Port** – Commander Pro mowers include a USB charging port.

# Commander Operator's Manual

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9. **“Before Operation” Decal** – Read the *Operator's Manual* and Wear Eye Protection, Ear Protection, and Safety Shoes.

10. **Fuel Gauge** – The fuel gauge for the right-side fuel tank.

## 3.2 Steering and Deck Controls

**Steering Control Levers** – These levers control the mower's speed, direction, and stopping.

**Steering Control Lever Adjustment Knob** – Turn the dials counterclockwise to adjust the steering levers forward or backwards to a comfortable position. Turn the dial clockwise to tighten into place.



*Figure 3-1: Steering Control Levers in Neutral Position*

**Parking Brake** - Pull the lever up to engage the parking brake. Press and hold the release button and lower the lever to disengage the parking brake.

# Commander Operator's Manual

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## WARNING

*The parking brake may not hold the mower on a slope.  
Block or use chocks with the machine when parked on a  
slope.*

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**Deck Lift Pedal** – The deck lift pedal raises and lowers the deck. Depress the pedal to raise the deck, rotate the cut height knob until the desired height aligns with the arrow in the panel, and release the pedal.

Depress the deck lift pedal to raise the deck when going over obstructions.

**Transportation Latch Release** – When depressed, the transportation latch release pedal will return the deck to height it was set when the transportation latch was engaged.



*Figure 3-2: Transportation Latch Release*



*Figure 3-3: Deck Lift Pedal*

## 3.3 Safety Start Interlock System

The mower's safety start interlock system consists of a park brake switch, seat switch, and deck clutch switch.

### NOTE

*Repair this important safety feature immediately if it malfunctions.*

---

This safety feature prevents mower run-on and accidental entanglement during operation.

Check the mower's safety start interlock system prior to each daily operation.

To inspect the system:

1. Sit on the seat.
2. Set both steering control levers in the park position and pull up on the park brake handle.
3. Start the engine and warm to operating temperature.
4. With the deck clutch switch down and the steering control levers in the neutral position and the park brake handle raised, slowly rise from the seat. The engine should continue to run.
5. With the deck clutch switch up and/or park brake handle in the disengaged position, slowly rise from the seat. The engine should stop.
6. If the engine fails to stop when:

# Commander Operator's Manual

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- The deck clutch switch is up, or
- The park brake is in the disengaged position, and
- The operator is not on the seat, then
- Check the function of the seat switch. Replace the seat switch if it is not operating properly (is not opening or closing) and if the cause cannot be determined.

If the issue persists, contact Konig Industries.

## WARNING

*The safety interlock system should always function per steps 4 and 5. Do not operate the mower without a properly functioning seat safety switch.*

---

### 3.4 Engine Starting

The mower's safety start interlock system is also designed to protect the operator and others from accidental injury due to unintentional engine starting. The engine starting motor will not engage until:

1. Steering control levers are in the Neutral position and the park brake handle is in the engaged position.
2. Deck clutch switch is in the down (OFF) position.

## WARNING

# Commander Operator's Manual

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***The safety interlock system must not be disconnected or bypassed. Doing so could cause the machine to operate unexpectedly resulting in personal injury.***

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Start the engine by following these steps. If you encounter difficulty, contact your Konig dealer.

1. Verify the steering control levers are in the neutral position and the park brake handle is in the engaged position and the deck clutch switch is disengaged. Start the engine only from the operator's position.
2. Set the throttle at approximately the lowest position.
3. Insert the key in the ignition switch and rotate it clockwise to engage the starting motor. Release the key when the engine starts.

## NOTE

***The engine starter should not be operated for periods longer than thirty (30) seconds at a time. At least two (2) minutes between such cranking periods to protect the starter from overheating and burning out.***

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4. As soon as the engine begins to run, check to verify all engine warning lights are off. If not, stop the engine immediately and check for the cause.
5. Perform the test shown in the Safety Start Interlock System section to verify the safety start interlock system operates properly.
6. Allow the engine to idle two (2) minutes before advancing the throttle and/or engaging the deck clutch.

## 3.5 Stopping the Engine

# Commander Operator's Manual

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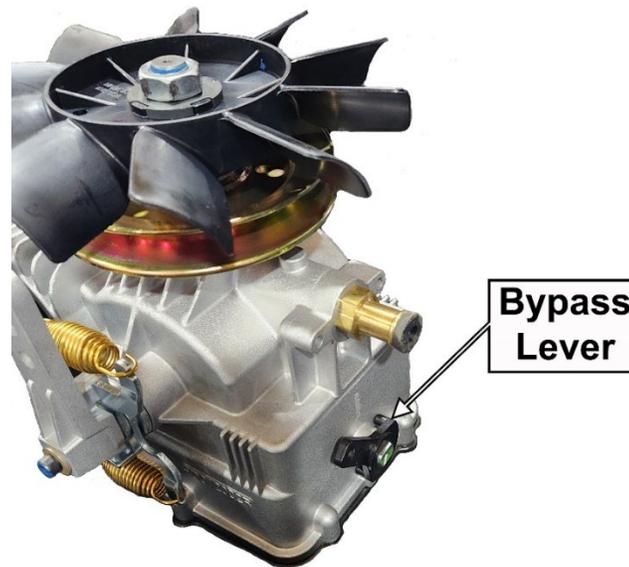
The following procedure to shut the engine off.

1. Place the steering control levers in the neutral position and the park brake handle in the engaged position.
2. Throttle the engine back to low idle, then disengage the deck clutch. Refer to the Mower Deck Operation section for more details.
3. Let the engine run at low idle for two (2) minutes.
4. Rotate the ignition key counterclockwise to the OFF position. Remove the key from the switch before leaving the mower.

## 3.6 Moving the Mower with Stalled Engine

If it becomes necessary to move the mower when the engine is inoperative, the bypass levers on both transmissions must be moved to the bypass position. Refer to Figure 3-4 for the location of the bypass lever. The top of the bypass lever on each transmission should be rotated clockwise when looking at the front of the transmission. After the mower has been moved, return the transmission bypass levers to their standard operating position. Do not tow the machine. Move it by hand or use a winch to load on a trailer for transporting.

When transporting on another vehicle, the mower should be facing forward and it must be secured using the tie-down points.



*Figure 3-4: Bypass Lever Location*

## 4.0 ROPS (Roll Over Protection Structure)

A ROPS may minimize the chance of injury or death from rollover.

A ROPS, when used with a seat belt, is effective in reducing injuries during unit overturn accidents. Overturning the unit without a ROPS or without the ROPS locked in the raised position can result in serious injury or death.

Pivot the two-post ROPS down by removing the right and left hair pins and pulling out on the spring-loaded pins to allow the machine to operate under low hanging tree limbs or other obstructions.



- 1. ROPS
- 2. Hair Pin
- 3. Pin

Figure 4-1: ROPS

**NOTE**

*When the ROPS is locked in the raised position verify the hair pins are inserted into the holes in the end of the spring-loaded pins.*

# Commander Operator's Manual

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Do not wear the seat belt when the ROPS is in the lowered position. Use the ROPS in the folded position only when necessary.

## WARNING

*Do not operate the mower with the ROPS folded down (lowered position) as a standard operating mode. A folded down ROPS does not provide rollover protection.*

---

## WARNING

*Always wear the seat belt unless the mower is equipped with a ROPS and the ROPS is folded down. In this case, the seat belt should never be worn.*

---

Always fasten the seat belt during mower operation (mower equipped with a ROPS in the raised or up position).

## WARNING

*To minimize chance of injury or death from rollover:*

- *Keep ROPS in the raised and locked position and use the seat belt.*
-

# Commander Operator's Manual

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- *Never operate the machine on a slope with the ROPS folded down (lowered position).*
  - *There is no roll over protection when the ROPS is in the lowered position.*
  - *Lower the ROPS only when necessary. Drive slowly and carefully. Raise the ROPS as soon as clearance permits. Read and follow slope operation instructions and warnings.*
  - *Do not wear the seat belt when the ROPS is in the lowered position or if it is not equipped with one.*
- 

## **WARNING**

- *Do not attach chains or ropes to the ROPS for pulling purposes, as the machine can tip backwards.*
  - *Always pull from the mower hitch.*
- 

Inspect the area prior to moving for proper overhead clearance (tree limbs, guy wires, doorways, etc.).

Do not contact any overhead object with the ROPS.

### 4.1.1 Seat Belt Maintenance

Inspect the seat belt system (all seat, seat belt parts, and seat platform) daily prior to mowing for signs of any damage. Replace any parts with signs of:

# Commander Operator's Manual

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- Cuts,
- Fraying,
- Extreme or unusual wear,
- Significant discoloration due to UV exposure,
- Dirt or stiffness,
- Abrasion to the seat belt webbing,
- Damage to the buckle, latch plate, or hardware,
- Any other problem.

Use soap and water to clean the seat belt. Do not use carbon tetrachloride, naphtha, or other chemical cleaning agents, as these will weaken the webbing. For the same reason, do not bleach or dye the webbing. Replace the seat belt if worn or damaged.

## 4.1.2 Possible Damage to ROPS

If the unit has rolled over or the ROPS has been in some other type of accident (such as hitting an overhead object during transport), replace the ROPS to retain the best protection.

Following an accident, check the ROPS, the operator's seat, the seat belt, seat belt mountings, and seat platform for possible damage. Before operating the machine, replace all damaged parts.

### NOTE

*Do not attempt to weld or straighten the ROPS.*

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**WARNING**

# Commander Operator's Manual

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*The ROPS structure's protective capability may be impaired by structural damage, overturn, or alteration.*

*Do not remove or alter any of the ROPS parts. Do not attempt to weld or straighten ROPS. Failure to adhere to these instructions could result in severe injury or death.*

*If the ROPS is replaced, always use the proper hardware and apply the recommended torque values to the attaching bolts.*

---

## 4.1.3 ROPS Inspection

Inspect the ROPS after the first twenty (20) hours of operation. Following the initial inspection, check the ROPS after every 500 hours of operation or every six (6) months, whichever comes first.

1. Check the torque of the ROPS mounting bolts. Tighten the bolts to the correct torques as shown.
2. Inspect the operator's seat and the mounting parts for the seat belt. Tighten the bolts to the correct torque as shown if necessary and replace parts that show wear or damage.
3. Check the seat platform to verify it is secure. Adjust or repair it as necessary.

### **WARNING**

*Never operate the mower with the seat platform improperly secured. The seat platform must be properly secured to prevent the seat from moving/tilting in the event of the mower tipping or rollover.*

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# Commander Operator's Manual

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	Ft-lbs	N•M
ROPS Mounting Bolts	73	99
Seat Belt Mounting Hardware	48	65

# Commander Operator's Manual

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## 5.0 Mower Operation

The following section provides detailed instructions on how to operate the mower. All users should become familiar with the controls before attempting operation. Begin operation slowly and use extra caution until you are confident with your skill level.

### 5.1 Driving the Mower



*Never make sudden stops or reverse direction, especially when maneuvering on a slope. The steering is designed for sensitive response. Rapid movement of the control levers in either direction could result in a reaction of the mower that can cause serious injury.*

---

After starting the engine, engage the steering control levers and steer as follows:

**To go forward** – Push the steering control levers forward an equal distance.

**To go in reverse** – Pull the steering control levers rearward an equal distance.

**To turn left** – Move the right steering control lever farther forward from neutral than the left steering control lever.

**To turn right** – Move the left steering control lever farther forward from neutral than the right steering control lever.

**Zero radius turn** – Move one steering control lever forward and other steering control lever back of neutral. This allows the drive wheels to counter rotate.

# Commander Operator's Manual

**To stop or decrease speed** – Move steering control levers to neutral. When going forward pull back gently on steering control levers. When going in reverse push forward gently on steering control levers.

**For emergency stops** – When traveling forward or rearward, place the steering control levers in the neutral position immediately.

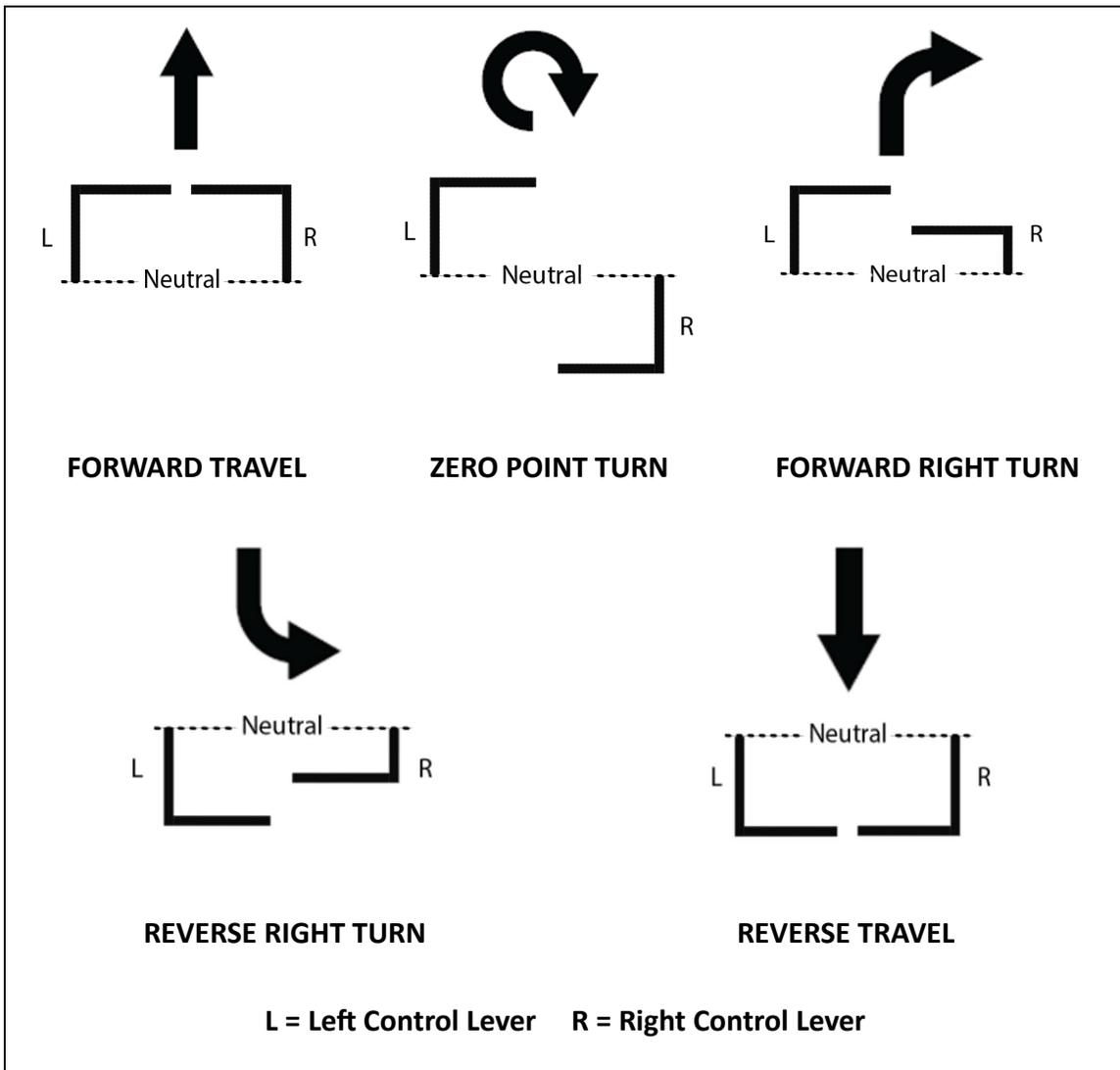


Figure 5-1: Mower Controls

# Commander Operator's Manual

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## DANGER

*When moving in the rearward direction push forward gently on steering control levers and void sudden movement. Any sudden movement could cause the front of the mower to come off the ground resulting in possible loss of control, causing serious injury or death.*

---

To make a three-point turn to the right:

1. Move the left steering control lever farther forward from neutral than the right steering control lever and start the turn.
2. Next, pull back on the steering control levers until they pass neutral and the machine starts to go rearward.
3. Pull the right steering control lever farther rearward from neutral than the left steering control lever until the rear of the machine pivots around.
4. Then, push the steering control levers forward until they both pass neutral and the machine starts to go forward.
5. Push the left steering control lever farther forward from neutral than the right steering control lever and finish the turn.

## WARNING

*Always be aware of what is behind the machine before backing up. Do not move in reverse unless necessary. Always look down and behind before and while backing up.*

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# Commander Operator's Manual

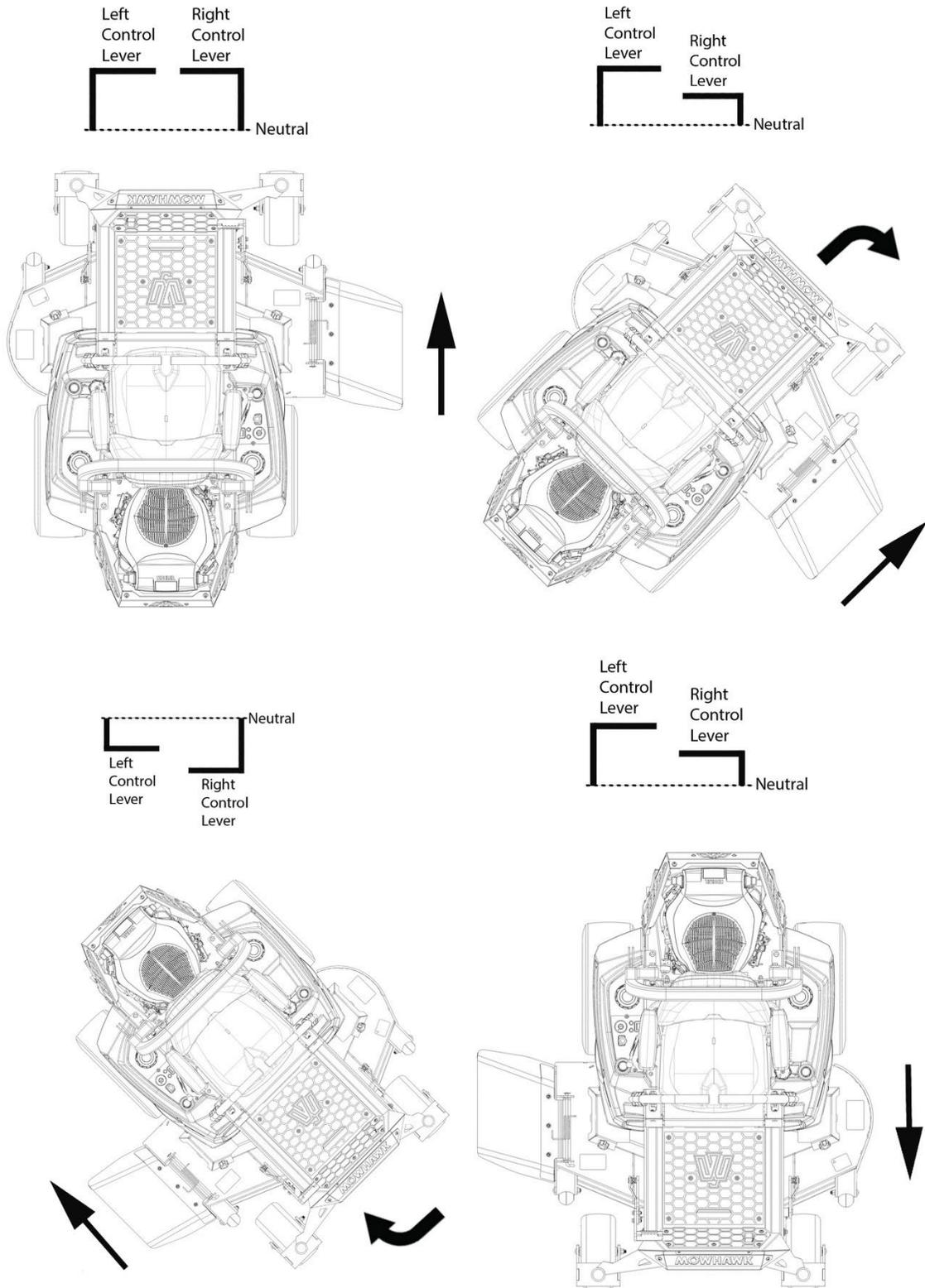


Figure 5-2: Three Point Turn

# Commander Operator's Manual

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## NOTE

*Damage to the hydraulic system components may occur with rapid movement of the steering controls.*

---

**To increase speed** – Increase the steering control lever's distance from neutral. The farther forward the steering control levers are from neutral, the faster the mower will travel forward. The farther back the steering control levers are from neutral, the faster the mower will go in reverse.

## DANGER

*An inexperienced operator should not mow on slopes or on uneven terrain.*

*Before attempting normal speed operation an inexperienced operator should:*

- *Be thoroughly familiar with the proper use and operation of the equipment.*
  - *Read the manuals completely and thoroughly.*
  - *Have attempted slow moving maneuvers.*
- 

## WARNING

*If you lose steering control while operating the machine, place the steering control levers in the neutral position immediately and pull up on the park brake handle to engage the park brake. Inspect the machine and contact*

---

# Commander Operator's Manual

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*Konig to resolve the problem before continuing to operate.*

---

## **WARNING**

*The unit's steering control levers are very responsive: Easy does it. For smooth operation, move the levers slowly, avoiding sudden movement. Skill and ease of operation come with practice and inexperience. The machine can spin very rapidly. Use caution when making turns and slow down before making sharp turns.*

---

Inexperienced operators may tend to oversteer and lose control. Practice slow maneuvers at low engine RPM (idle) on a flat open area before attempting normal speed operation.

## **WARNING**

*Sharp depressions or raised obstacles (such as gutters or curbs) should not be directly approached at high speed to jump them as the operator could be thrown from the equipment. Approach at a slow speed and angle one drive wheel at the obstruction. Continue at an angle until the wheel clears and then pivot the opposite wheel around.*

---

When turning on soft wet turf, keep both wheels rolling either forward or backward. Pivoting on one stopped wheel can damage turf, especially when mowing.

# Commander Operator's Manual

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Set the throttle at full RPM for maximum performance. This gives maximum power to the drive wheels and deck when needed. The throttle setting directly controls blade speed. Use the control lever to control ground speed rather than engine rpm. Keep blades sharp. Many problems with incorrect cutting patterns are due to dull blades or blades which have been sharpened incorrectly. Information on sharpening blades is listed in this manual's maintenance section. Blade sharpness should be checked daily.

## DANGER

*Never work with blades while the engine is running or the deck clutch switch is engaged.*

*Always place the deck clutch switch in the disengaged position, place steering control levers in the neutral position, engage the park brake, turn the engine off, and disconnect the negative battery cable.*

*Block the mower up when you must work under it.*

*Wear gloves when handling blades.*

*Always check for blade damage if the mower strikes a rock, branch, or other foreign object during mowing.*

---

**Side Discharge Deck** – Direct grass discharge to the right, away from the un-mowed area. Generally, this means using a pattern of left turns. Avoid throwing grass discharge onto un-mowed area. Mowing clippings puts an



*Figure 5-3: Discharge Chute*

# Commander Operator's Manual

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unnecessary load on the unit and reduces mowing efficiency.

When mowing a lawn for the first time cut grass slightly longer than normal to avoid scalping uneven terrain. When cutting grass taller than six (6) inches, mowing the grass twice may achieve a better quality of cut.

During normal mowing cut only about 1/3 of the grass blade.

Alternate the mowing direction to keep the grass growing straight and for better dispersion of the clippings.

Remember, grass grows at different rates at different times of the year. Mow more often in the early spring to maintain the same cutting height. As the growth rate slows in midsummer, mow less frequently. If not mowing a regular interval, mow at a high cutting height then mow again in two (2) days at a lower cutting height.

Raise the cutting height of the mower if the cutting width of the mower is wider than the previous mower. This ensures that uneven turf is not cut too short.

Raise the cutting height of the mower if the grass is slightly taller than normal or if it contains a high degree of moisture. Then mow it again with the cutting height set lower.

If the mower's forward motion must be stopped while mowing, a clump of grass clippings may drop onto the lawn. To avoid this, move onto a previously cut area with the blades engaged.

## **WARNING**

***Side Discharge Decks – Never direct the discharge of material from the mower deck toward bystanders.***

***Never operate the mower deck with the discharge chute damaged, altered, removed, or in the raised position,***

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# Commander Operator's Manual

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*except when the entire grass catcher attachment or mulching system is being used.*

---

## DANGER

*Never attempt to make any adjustments to the mower deck while the engine is running or with the deck drive clutch engaged. Mower blades cannot be seen and are located very close to the deck housing. Fingers and toes can be cut off instantly.*

---

## 5.2 Deck Clutch Operation

Before beginning operation, check to verify the deck clutch switch is engaging and disengaging the blades properly.

## WARNING

*Verify the area around and under the deck is clear and that there are no bystanders in the immediate area before proceeding.*

---

To check the deck clutch switch:

# Commander Operator's Manual

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1. Start the engine and engage the deck clutch.
2. With the deck clutch switch up (clutch engaged) and the engine running, listen to confirm that the mower blades are rotating.
3. Now, push the deck clutch switch down (clutch disengaged) and with the engine running, listen to confirm that the blades have stopped rotating.
4. If the mower blades continue to rotate with the deck clutch switch down, discontinue operation immediately and contact Konig.

Follow these procedures to maximize clutch life:

1. Engage the clutch only when the throttle is set at approximately  $\frac{2}{3}$  throttle and there is no load on the blades. After clutch engagement, advance the engine throttle to full rpm.

Engage the deck clutch at high engine rpm or when under heavy load (in tall grass, for example) can cause belts and/or electric clutch to slip, resulting in premature wear or possible damage.

2. Disengage the clutch only when the throttle is set at less than  $\frac{1}{2}$  throttle.

Never disengage the clutch with the engine running at high rpm. Setting the throttle to less than  $\frac{1}{2}$  throttle when disengaging the clutch will help extend clutch life.

Warranty will not be allowed for deck clutches that fail due to improper engagement and disengagement practices.

## 5.3 Deck Cutting Height Adjustment

The deck cutting height is adjustable in  $\frac{1}{2}$  inch (12.7 mm) increments.

To set the deck cutting height:

# Commander Operator's Manual

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1. Depress the deck lift pedal to release pressure from the cutting height knob.
2. Rotate the knob to the desired cutting height.
3. Release the deck lift pedal.



*Figure 5-4: Cutting Height Knob*

To place the deck in the transport position:

1. Depress the deck lift pedal until the front left deck lift arms latches above the transport latch.
2. Release the deck lift pedal.

To release the deck from the transport position:

1. Depress the deck lift pedal.
2. Depress and hold the transport latch release pedal.
3. Release the deck lift pedal to lower the deck to the desired cutting height.
4. Release the transport latch release pedal.

## 5.4 Anti-Scalp Wheels

Anti-scalp wheels are standard on these mowers. These anti-scalp wheels are designed to minimize scalping when mowing on rough, uneven terrain. There are three (3) height adjustment settings for the anti-scalp wheels/rollers. The upper hole positions the wheels/rollers 1 ¼ inches below the cutting blades and the lower hole positions them 2 ¼ inches below the cutting blades.



*Figure 5-5: Anti-Scalp Wheels*



# Commander Operator's Manual

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## **6.0 Maintenance**

### **6.1 Safe Servicing Practices**

Refer to the Safety Precautions in Section 2 of this manual for more service safety information.

### **6.2 Service Introduction**

Regular maintenance is the best prevention for costly downtime or expensive, premature repair. This section contains suggested maintenance information and schedules which the operator should follow on a routine basis. For more detailed information refer to the Parts Manual and General Service Manual for this mower.

Remain alert for unusual noises, which could signal a problem. Visually inspect the machine for any abnormal wear or damage. A good time to detect potential problems is while performing scheduled maintenance service. Correcting the problem as quickly as possible is the best insurance.

Clear away heavy build-up of grease, oil, and dirt, especially in the engine and hydraulic component areas; minute dust particles are abrasive to close-tolerance engine and hydraulic assemblies.

# Commander Operator's Manual

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Inspect the mower daily for grass clippings and wire or string tangles. The underside of the mower deck will collect a buildup of grass clippings and dirt, especially when grass is wet or has high moisture content. This buildup will harden, restricting blade and air movement which will probably result in a poorer quality of cutting. Therefore, it should be removed regularly. To do this it will be necessary to raise and block the deck using jack stands or blocks in the full up position. Scrape the buildup off from underneath.

Seat Arm Rests – Place the steering control levers in the neutral position and pivot the arm rests upward before lifting the seat platform to prevent arm rest damage.

Some repairs require the assistance of a trained service mechanic and should not be attempted by unskilled personnel. Contact Konig Industries for further assistance.

## 6.3 Torque Values

### **WARNING**

*Particular attention must be given to tightening the drive wheel lug nuts and blade spindle bolts. Failure to correctly torque these items may result in the loss of a wheel or blade, which can cause serious damaged or personal injury.*

---

Torque values:

	Ft-lbs	N●M
Wheel (lug) nuts	70	95
Blade spindle blot top	70	95
Blade spindle bolt bottom	118	160

# Commander Operator's Manual

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Lug nuts only – It is recommended that these be checked after the first two (2) hours of operation, initially, every fifty (50) hours and following removal for repair or replacement.

For all other torques refer to the mower's General Service Manual for standard torque chart.

For engine torque values, refer to the Engine Owner's Manual.

## 6.4 Tires

It is important for level mowing that the tires have the same amount of air pressure. The recommend pressures are:

	Ft-lbs
Drive Wheels	8-12 psi (55-83 Kpa)
Front Wheels (Pneumatic)	8-12 psi (55-83 Kpa)

Some models include semi-pneumatic front tires as standard equipment. These tires do not require any air pressure and the wheels are not equipped with a valve stem. These tires should be inspected daily for visual damage to the tire or wheel. The complete tire and wheel assembly should be replaced if it is damaged or significantly worn. If you wish to use non-pneumatic tires on the Konig mower, the tire must be a Konig approved tire. Warranty claims will be denied on any mower equipped with unapproved non-pneumatic tires.

# Commander Operator's Manual

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## 6.5 Lubrication

Use SAE multi-purpose grease.



*Never attempt to make any adjustments to the mower deck while the engine is running or with deck drive clutch engaged. Mower blades cannot be seen and are located very close to the deck housing. Fingers and toes can be cut off instantly.*

---

## 6.6 Electrical System

A blue rectangular box with the word "NOTE" in white, uppercase letters.

### NOTE

*Refer to the Safety section of this manual for detailed battery servicing safety information.*

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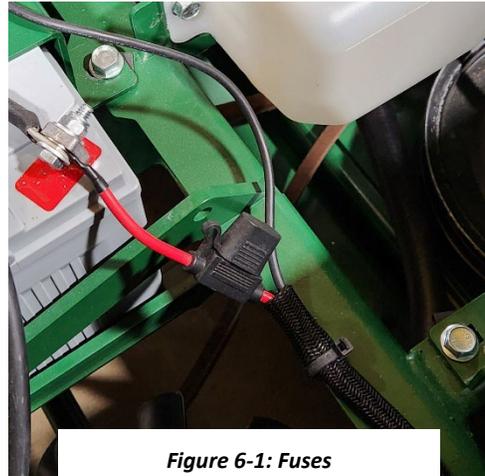
# Commander Operator's Manual

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The electrical system is a 12-volt, negative ground. The recommended battery size is a garden tractor BCI group 45 with a 480 or better cranking AMP rating.

A maintenance-free battery is recommended. Otherwise, follow battery manufacturer's maintenance, safety, storing, and charging specifications.

These mowers have a master in-line fuse (30-amp) in the electrical system. This is the main fuse to protect the complete electrical system. It is located next to the battery.



*Figure 6-1: Fuses*

## 6.7 Hydraulic System

### **WARNING**

*Hydraulic fluid escaping under pressure may have sufficient force to penetrate skin and cause serious injury. Foreign fluid injected into the skin must be surgically removed within a few hours by a doctor, familiar with this form of injury, or gangrene may result.*

Before applying pressure to the hydraulic system, verify all connections are secure. To find a leak under pressure, use a piece of cardboard or wood — never use your hands. Relieve all pressure in the system before disconnecting or working on any fittings.

Check the oil level in both transmissions after every 50 hours of operation or weekly, whichever occurs first. Check more often if the system appears to be leaking or otherwise malfunctioning. The oil level should be checked when the fluid is cool. When

# Commander Operator's Manual

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the fluid is cool, the level of the fluid should be  $\frac{1}{4}$  -  $\frac{1}{2}$  inch above the bottom of the expansion tank.

The mower ships from the factory with Parker HT1000 oil in the hydraulic system. When topping off or changing oil, a mineral or synthetic based 10W40 engine oil or hydraulic oil is recommended.

Specific recommended fluids are:

- Castrol Syntec 5w-50
- Amsoil AW ISO 68
- Shell TTF-SB

The hydraulic oil and filter should be changed at 200 - 300 hours of use. If one of the recommended fluids above are used, change the oil and filter at 500-hour intervals thereafter. If other fluids are used, change the oil and filter at 250-hour intervals thereafter.

Each transmission contains an oil filter. Refer to the Service Manual for specific information about the oil change procedure. Refer to the Parts Manual for part numbers of the transmission service kit (which includes all materials needed to change oil and filter in both transmissions) and containers of approved oil.



*Figure 6-2: Expansion Tanks*

## 6.8 Fuel System

### NOTE

*Refer to the Safety section of this manual for fuel handling safety information.*

---

### NOTE

*Refer to the engine owner's manual for additional emissions control information.*

---

The fuel and evaporative emissions control system for this mower is EPA compliant. Use only Konig approved replacement parts.

The evaporative emission control system may include parts such as:

- Fuel tanks
- Fuel lines

# Commander Operator's Manual

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- Fuel line fittings
- Fuel caps
- Carbon canisters
- Canister mounting brackets
- Carburetor purge port connection
- Filters
- Vapor hoses
- Clamps, control valves
- Control solenoids
- Electronic controls
- Vacuum control diaphragms
- Purge valves
- Liquid/vapor separator
- Other associated components

Modifying or tampering with the evaporative emissions control system or the fuel system is prohibited. Federal law and California State law prohibit the following acts or the causing thereof:

1. The removal or rendering inoperative by any person other than for purposes of maintenance, repair, replacement, of any device or element of design incorporated into any equipment for the purposes of emissions control prior to or after its sales or delivery to the ultimate purchaser or while it is in use, or
2. The use of the equipment after such device or element of design has been removed or rendered inoperative by any person.

# Commander Operator's Manual

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The fuel tanks are in the mower's fenders.

Park the mower on level ground before filling the fuel tank.

## WARNING

*Use of replacement parts not equivalent to the original parts may result in system failure and pose a safety hazard.*

---

Clean the area around the fuel cap before removing the cap. Remove the fuel cap slowly.

When threading the fuel cap onto the filler neck, tighten the cap until it begins to click, then, continue to turn it until at least three (3) clicks are heard.

## NOTE

*Do not overfill the fuel tanks. The fuel tanks should be filled no higher than the bottom of the fill neck. The fuel system is designed to leave room for the fuel to expand with fuel temperature changes.*

---

## WARNING

*Overfilling the fuel tank may cause the following:*

- *Engine damage*
  - *Fire hazard!*
-

# Commander Operator's Manual

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Use regular unleaded gasoline with an octane rating of 87 or higher. Maximum of 10% ethanol (E10) in fuel. Fuels with greater than 10% ethanol (such as E15, E20, and E85) voids warranty. Fuels with greater than 10% ethanol are not approved for use and such illegal use could cause equipment failure and pose a fire hazard.

Refer to the Engine Owner's Manual for additional fuel specification requirements.

A fuel shut-off valve is located on each mower. The location and operation of the fuel valve will vary depending upon the unit. Close the fuel valve to prevent fuel flow to the engine. The valve's two (2) other positions will allow fuel to be drawn from either one or the other fuel tank.



Figure 6-3: Left Fuel Tank



Figure 6-4: Fuel Shut-off Valve

## **WARNING**

*Allow the engine to cool before changing the engine oil.  
If the engine has been running, use caution when  
changing the engine oil as it will be very hot. Wear the*

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# Commander Operator's Manual

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*appropriate protective gear to avoid being burned or exposed to engine oil.*

---

Check engine oil level daily and after every four (4) hours of operation. Machine must be setting level when checking oil. Refer to the engine manual and maintenance schedule for oil recommendation and capacities.

Change the engine oil and filter according to the intervals listed in the engine service manual. If mower is being operated in extremely dirty conditions, then it is recommended oil be changed more frequently.

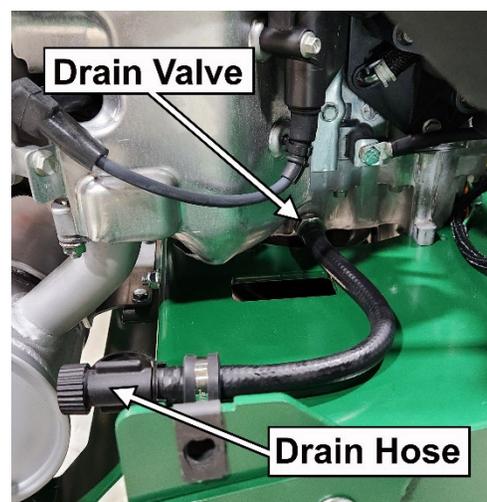
## NOTE

*After the new oil filter has been installed, clean up any oil which may have spilled onto the engine plate, engine exhaust system, and muffler guard.*

---

Draining the engine oil:

1. Locate the oil drain hose and valve on the engine.
2. Position a suitable oil drain container under the machine below the oil drain valve.
3. Remove the cap from the drain valve. Twist the valve counterclockwise and gently pull on the plastic cover to open the valve. Allow ten (10) minutes for engine oil to adequately drain.



*Figure 6-4: Oil Drain Valve and Hose*

4. After the oil is drained, close the valve by twisting it clockwise.

# Commander Operator's Manual

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5. Once the valve is closed, clean up any spilled oil.

## NOTE

*All oil drips or spills must be cleaned off the engine plate, engine exhaust system, and muffler guard before operating the machine.*

---

## 6.9 Engine Air Filter

Perform engine air filter maintenance per the Maintenance Schedule shown elsewhere in this manual.

A specially designed dry filter is standard equipment on these mowers and supplies clean combustion air to the engine.

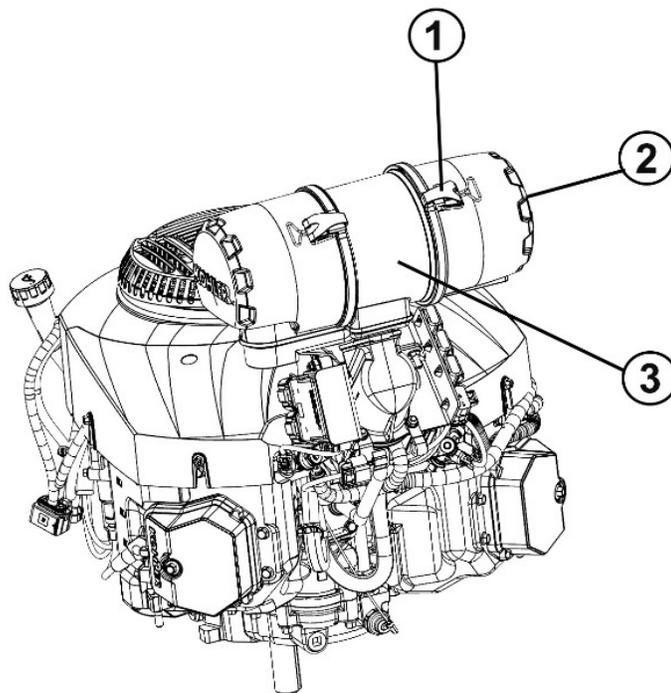


Figure 6-5: Air Filter

# Commander Operator's Manual

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- |          |             |             |
|----------|-------------|-------------|
| 1. Clamp | 2. Dust Cap | 3. Canister |
|----------|-------------|-------------|

These mowers are equipped with a safety filter. The filter element slides over the safety filter.

The safety element does not require servicing unless it becomes contaminated with dirt or moisture.

## 6.9.1 Recommended Service Procedure

1. Release clamps and remove element. Clean the air cleaner canister with a damp cloth.
2. Before installing a new element, inspect it by placing a bright light inside and rotating the element slowly, looking for any holes or tears in the paper. Also check gaskets for cuts or tears. Do not attempt to use a damaged element which will allow abrasive particles to enter the engine.
3. Reinstall the dust cap. Verify it seals all the way around the air cleaner canister, then tighten the clamps.
4. Check all fittings and clamps periodically for tightness and inspect hoses for holes or cracks. Periodically check the intake hose for signs of ingested dust. Locate and repair the source of ingested dirt.
5. Never operate the machine without an air filter installed.

## 6.9.2 Overservicing

Overservicing occurs when an air filter element is removed for cleaning or replacement before it is necessary. Each time the filter is removed a small amount of dirt and dust could fall in the intake system. This accumulated dirt can cause a dusted engine. It only

# Commander Operator's Manual

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takes a few grams of ingested dirt over the normal service of an engine to cause a dusted engine.

Do not clean the element; replace with a new element only. Cleaning used air filter elements, through improper cleaning procedures, can get dust on the inside of the filter causing dirt ingestion and engine failure.

It is important to note that whenever an air filter element is cleaned by any method, the person or company performing the cleaning assumes responsibility for the integrity of the filter from then on. The warranty for air filters expires upon cleaning or servicing in any manner because the condition of the filter after servicing is completely out of the filter manufacturer's control. Therefore, on a dust ingested engine failure, there will be no warranty consideration if the air filter element has been cleaned or serviced in any manner.

A partially dirty air filter element works better than a new element. Therefore, a dirty filter element is not bad for the engine unless it is excessively restricting the air flow and engine performance is affected. The media in the filter must be porous to allow air to pass through it. When dirty air passes through the filter, the dirt plugs some of the holes in the media and acts as part of the filter media. When the next round of dirt enters, the first dirt helps filter out even smaller particles making the filter more efficient at stopping dirt from entering the engine. This is referred to as barrier filtration.

At some point the filter media becomes too clogged to allow air to pass.

The mowing conditions will determine the frequency of air filter element changing.

## 6.10 General Engine Maintenance

Detailed instructions and recommendations for break-in and regular maintenance are specified in the Engine Owner's Manual. Please refer to this manual for engine servicing, lubricating oil levels with quality and viscosity recommendations, bolt torques, etc. The

# Commander Operator's Manual

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engine warranty is backed by the engine manufacturer. Special attention should be given to applicable data which will not be duplicated here.

## 6.10.1 Belts

Inspect belts frequently for wear and serviceability. Replace a belt that shows signs of:

- Severe cuts
- Tears
- Separation
- Weather checking
- Cracking
- Burns caused by slipping

Slight raveling of the belt covering does not indicate failure, trim raveling with a sharp knife.

### **WARNING**

*If the pump belt fails, loss of control will occur especially when operating on a slope. If you lose steering control while operating the machine, place the steering control levers in the neutral position and engage the park brake handle immediately. Inspect the machine and involve Konig to resolve the problem before continuing to operate.*

---

Inspect the belt pulley grooves and flanges for wear. A new belt, or one in good

# Commander Operator's Manual

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condition, should never run against the bottom of the groove. Replace the pulley when this is the case, otherwise the belt will lose power and slip excessively.

Never pry a belt to get it on a pulley as this will cut or damage the fibers of the belt covering.

Keep oil and grease away from belts, and never use belt dressings. Any of these will destroy the belt composition in a very short time.

## 6.11 Mower Blade Maintenance

### NOTE

*Refer to the Safety section of this manual for blade handling safety information.*

---

Check the mower blades daily, they are the key to power efficiency and well-groomed turf. Keep the blades sharp. A dull blade will tear rather than cut the grass, leaving a ragged brown top on the grass within a few hours. A dull blade also requires more power from the engine.

Replace any blade which is bent, cracked, or broken.

### WARNING

*Always check for blade damage:*

- *If mower strikes a rock, branch, or other foreign object during mowing.*
-

# Commander Operator's Manual

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- *Or if an abnormal vibration occurs while operating.*

*Verify all necessary repairs before resuming operation.*

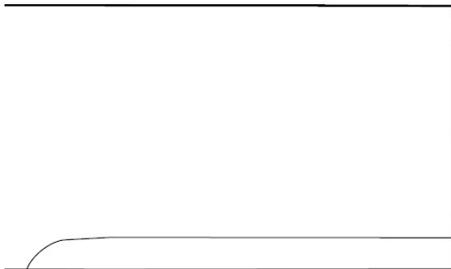
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Sharpen the blades following the pattern shown. Touch-up sharpening can be done with a file.

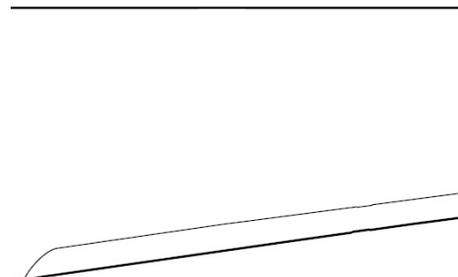
After grinding the blades, check for balance. Blade balancing can be done by placing the blade on an inverted line punch or 5/8-inch bolt. A commercial balancing tool is also available through most hardware supply stores.

The blade should not lean or tilt. When spinning the blade slowly it should not wobble. Balance the blade before re-installing.

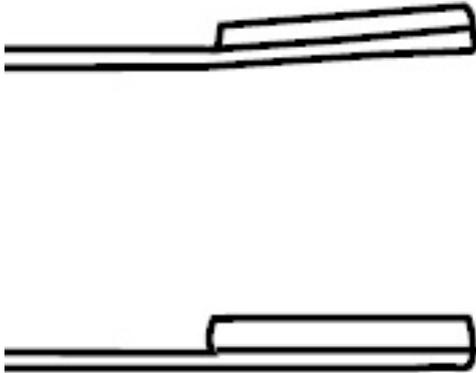
Lay the blade on a flat surface and check for distortion. Replace any distorted blade.



**Figure 6-6: Original Blade Pattern**



**Figure 6-7: Blade Sharpening Pattern**



*Figure 6-8: Warped Blade End Versus Straight Blade*



*Figure 6-9: End View of Straight Blade*

## 6.11.1 Mower Blade Replacement

### NOTE

*Mower blades are sharp and can cut. Wrap the blades or wear gloves and use extra caution when servicing them.*

---

### WARNING

*Mower blades are sharp and can cut. Wrap the blades or wear gloves and use extra caution when servicing them.*

---

A 15/16-inch wrench is required to remove the 5/8-inch cap screw holding the blade to the spindle shaft.

# Commander Operator's Manual

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Do not re-use spindle bolts which have stripped, worn, or undercut threads. Torque bolts on spindles to 118 ft-lbs (160.0 N•M) when reinstalling blades.

## NOTE

*The blade sail (curved portion) must be pointing upward toward the inside of the deck to ensure proper cutting.*

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When mounting blades, rotate them after installation to ensure blade tips do not touch each other or sides of the mower.

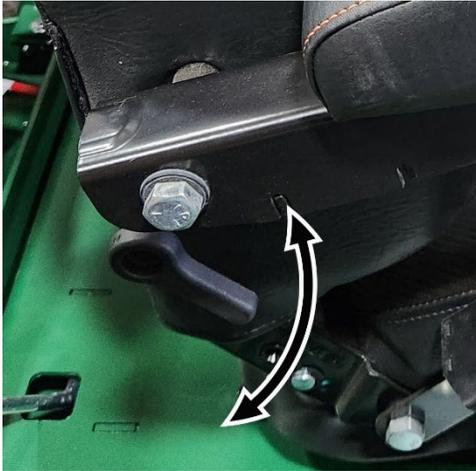
### 6.11.2 Seat Adjustment

The following are the adjustments for the seat.

Seat (Option 1)

This seat can be adjusted four (4) different ways to obtain the most comfortable position:

1. Lumbar Support
2. Forward and rearward travel
3. Weight
4. Armrest



*Figure 6-10: Lumber Support*



*Figure 6-11: Seat Release Lever*

## 6.11.3 Seat (Option 2)

This seat can be adjusted two (2) different ways to obtain the most comfortable position:

1. Use the seat release lever to slide the seat forward and rearward.
2. Adjust the seat firmness by turning the ride adjustment knob.



*Figure 6-12: Ride Adjustment Knob*



*Figure 6-13: Armrest Movement*

## 6.12 Steering Control Lever Adjustment

# Commander Operator's Manual

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The steering control levers can be adjusted for operator comfort.

To pivot the upper control levers forward or rearward, loosen the hand knob. Then, pivot the upper control lever. Tighten the hand knob.

The steering control levers should be adjusted to align with each other when in the neutral position.



*Figure 6-14: Steering Adjustment Knob*

<b>Maintenance Schedule</b>
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# Commander Operator's Manual

Service at Intervals Indicated	Weekly or 50 Hours	Monthly or 100 Hours	Annually or 500 Hours
Verify safety start interlock system	Prior to each use		
Visually inspect unit for loose hardware and/or damaged parts	Prior to each use		
Visually inspect the tires	Prior to each use		
Check oil level, engine (1)(4)	Prior to each use of every 4 hours		
Check fuel level	Prior to each use		
Blades – sharpen and securely fastened	Prior to each use		
Discharge chute – securely in place and in lowest position	Prior to each use		
Clean engine compartment	Daily		
Replace engine air cleaner element (5)(10)	As needed		
Caster fork tapered bearings (11)	Regular maintenance not required		
Change engine oil and filter (1) (4)		X	
Clean cylinder and head fins (10)	X		
Check battery connections	X		
Check tire pressure with a gauge	X		
Check hydraulic oil level	X		
Clean engine exterior (10)	X		
Grease deck pusher arms (8)		X	
Grease deck height pivots (8)		X	
Clean and re-gap spark plugs (10)		X	
Check transmission and deck belt tension and condition (6)		X	
Check fuel system (7)		X	
Check fuel valve (7)		X	
Check fuel tank grommets (7)		X	

# Commander Operator's Manual

<b>Maintenance Schedule</b>			
Service at Intervals Indicated	Weekly or 50 Hours	Monthly or 100 Hours	Annually or 500 Hours
Tighten lug nuts on wheels (2)		X	
Change fuel filter (7)			X
Change transmission filters and oil (3)			X
Grease deck spindle housings		X	
Replace spark plugs (10)			X
Check ROPS mounting hardware (9)			X

**NOTES:**

1. Refer to the engine manual for oil change intervals. Change more often under dusty or dirty conditions and during hot weather periods.
2. Torque initially and after first two (2) hours of operation.
3. Perform initial hydraulic oil and filter change after three hundred (300) hours of operation. Thereafter, change oil and filter annually or every 500 hours whichever comes first.
4. Change engine oil filter per the engine manufacturer's recommendation. Refer to the Engine Owner's Manual for recommendations and other maintenance items.
5. Service more often under dusty or dirty conditions. Use caution when servicing to prevent dust contamination in the engine. Do not clean filter element. Replace with a new one.
6. Pump drive belt only – Inspect belt every 100 hours and replace if worn or cracking is noticed. Otherwise, replace belt every 400 hours or two (2) years whichever comes first.
7. Check fuel system for any cracks or leaks including, but not limited to, fuel line hoses, vent line hoses, vent valve, vapor valve, carbon canister, and grommets. Replace as needed.
8. More often under dusty or dirty conditions and during hot weather.
9. Inspect ROPS after the first twenty (20) hours of operation and then after every 500 hours of operation or yearly whichever comes first.
10. Refer to the engine owner's manual for engine service information.
11. If the caster fork tapered bearing seals leak, refer to the General Service Manual for repair procedures.
12. Refer to the General Service Manual to service or repair the tapered wheel bearings.

\*After completing the maintenance cycle (500 hours), repeat cycle.

# Commander Operator's Manual

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## 6.13 Maintenance Record

Perform the initial hydraulic system oil and filter change after the first three hundred (300) hours of use.

Date:	Maintenance/Service Performed:
Dealer:	
Hour Meter Reading:	
Date:	Maintenance/Service Performed:
Dealer:	
Hour Meter Reading:	
Date:	Maintenance/Service Performed:
Dealer:	
Hour Meter Reading:	

# Commander Operator's Manual

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## 7.0 Troubleshooting

Most operating issues which occur with a system can be traced to improper adjustments or delayed service. A consistently applied preventative maintenance program, as outlined in the Section 6 of this manual, will prevent many problems. The following chart lists various potential issues, probable causes, and suggested remedies.

Symptom	Probable Cause	Suggested Action
Starting motor does not crank	Park Brake lever is not in the engaged position	Place the park brake lever in the engaged position
	Deck clutch switch engaged	Disengage clutch switch
	Weak or dead battery	Recharge or replace
	Electrical connections are corroded or loose	See engine manual
The engine will not start, struggles to start, or stalls after starting	No fuel or the fuel line is plugged	Fill tank or replace line (See Fuel System section for more details)
	Fuel valve is turned off	Open the fuel valve
	There is incorrect fuel in the fuel system	Drain the tank and replace the fuel with the proper type
	There is dirt in the fuel filter	Replace the fuel filter
	Dirt, water, or stale fuel in the fuel system	Contact the dealer

# Commander Operator's Manual

Symptom	Probable Cause	Suggested Action
	Numerous	See engine manual
Engine: Runs with continuous misfiring or engine runs unevenly or erratically	Numerous	See engine manual
	Restrictions in air cleaner	Service air cleaner
	Hydraulic system blockage	Contact the dealer
	Internal interference or leakage in wheel motor	Contact the dealer
	Insufficient hydraulic oil supply	Check level in expansion tanks
		Have dealer check hydraulic pump
	Poor compression	Call the dealer
	Steering linkage needs adjustment	Adjust linkage
	Tow valve open	Close tow valve
	The traction drive belt is worn, loose, or broken	Install a new traction drive belt
	Air in system	Check filter and fittings
For additional causes	See engine manual	
Air cooled engine overheating	Air intake screen or cleaning fins clogged	Clean screen and fin
	For additional causes	See engine manual
Low engine oil pressure	Low oil level	Add oil
	Oil diluted or too light	Change oil and check for source of contamination
	Failed oil pump	Contact the dealer
High oil consumption	Numerous	Contact the dealer
Mower jerky when starting or operates in one direction only	Steering control linkage needs adjustment	Adjust linkage

# Commander Operator's Manual

	Transmission faulty	Contact the dealer
	Tow valves not closed completely	Close tow valves
<b>Symptom</b>	<b>Probable Cause</b>	<b>Suggested Action</b>
Hydraulic system operates hot (oil in reservoir smells rancid)	Low hydraulic oil level	Fill expansion tanks
	Hydraulic pump faulty	Contact the dealer
Mower creeps when steering control levers are in neutral	Steering linkage needs adjustment	Adjust linkage
Mower circles or veers in one direction	Steering linkage needs adjustment	Adjust linkage
	Transmissions faulty	Contact the dealer
	Tires improperly inflated	Contact the dealer
Mower creeps when parking brake engaged	Steering linkage out of adjustment	Adjust steering linkage
	Brakes need adjustment	Adjust parking brakes
There is abnormal vibration	The engine mounting bolts are loose	Tighten the engine mounting bolts
	The engine pulley, idler pulley, or blade pulley is loose.	Tighten the appropriate pulley.
	The engine pulley is damaged.	Contact the dealer.
	The cutting blade(s) is/are bent or unbalanced.	Install new cutting blades(s).
	A blade mounting bolt is loose.	Tighten the blade mounting bolt.

## Commander Operator's Manual

	Spindle bearing is worn or loose.	Replace or tighten spindle bearing.
	A blade spindle is bent.	Contact the dealer.
<b>Symptom</b>	<b>Probable Cause</b>	<b>Suggested Action</b>
Blades do not rotate	The deck drive belt is worn, loose, or broken.	Install a new deck drive belt.
	The deck drive belt is off the pulley.	Install the deck drive belt and check for a reason.
	Electric clutch is not engaging.	Check and/or replace the 15-amp fuse and the 30-amp fuse.  Contact the dealer.
Uneven cutting height	The blade(s) are not sharp.	Sharpen the blades.
	A cutting blade(s) is/are bent.	Install new cutting blades(s).
	The deck is not level.	Level the deck per the Deck Level and Height Adjustment Section of the General Service Manual.
	An anti-scalp wheel is not set correctly.	Adjust the height of the anti-scalp wheel.
	The underside of the deck is dirty.	Clean the underside of the deck.
	Tires improperly inflated.	Adjust air pressure to 8-12 psi (55-83 KPa)
	A blade spindle is bent.	Contact the dealer.

## 8.0 Storage

When storing the machine after the mowing season, the mower, engine, and battery should have the following items serviced before storage.

If the mower has been stored for an extended period, follow the new season preparation steps before beginning operation.

### 8.1 General Mower Preparation for Storage

1. Remove all grass, dirt, and trash from the mower and cutting units.

#### NOTE

*Wash the machine with a mild detergent and water. Do not pressure wash the machine. Avoid excessive use of water, especially near the control panel and engine.*

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2. Clean mower and deck and touch up any damage to the paint.
3. Replace the air filter element.
4. Check thoroughly for any worn or damaged parts and order replacements as necessary.
5. Thoroughly lubricate the machine according to Section 6.
6. Block the mower so the weight is off the tires. Check the tire pressure and inflate to proper operating pressure.

# Commander Operator's Manual

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## NOTE

*Do not deflate the tires.*

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7. Perform separate engine and battery preparation as listed below.
8. Store the mower in a clean, dry place.

## 8.2 Preparation of the Engine for Storage

If the mower is to be unused for an extended period (30 days or more), the engine must be prepared for storage. Use the following procedures before storing the mower.

## NOTE

*Refer to the Fuel Handling Precautions section of this manual for important safety information before proceeding.*

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1. Add an approved fuel stabilizer to the fuel system. Refer to the instructions shown on the fuel stabilizer bottle for proper usage. For detailed information, consult your mower dealer.
2. Fill the fuel tank(s) with fresh fuel.

## NOTE

*Use non-ethanol fuel if possible.*

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# Commander Operator's Manual

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## WARNING

*To prevent carbon monoxide poisoning, operate the engine in a well-ventilated area only.*

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3. Run the engine for a minimum of ten (10) minutes.

## WARNING

*Allow the engine to cool before changing the engine oil. Use caution when changing the engine oil as it will be very hot. Wear the appropriate protective gear to avoid being burned or exposed to engine oil.*

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4. Check thoroughly for any worn or damaged parts that need to be replaced and order from the dealer.
5. Replace the engine oil filter.
6. Refill with fresh oil of the proper viscosity.
7. Close the fuel shut-off valve (if equipped).
8. Check the oil filter cap and fuel tank cap(s) to verify they are securely in place.
9. Refer to the engine manual for more information.

### 8.3 Preparation of Battery for Storage

When the machine is to be unused for long periods, it is best to disconnect the battery and remove it from the mower. At this time perform the following battery maintenance:

# Commander Operator's Manual

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1. Remove the battery from machine.

## NOTE

*Always disconnect the negative (black) battery cable(s) before disconnecting the positive (red) cable(s).*

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2. Clean the battery, terminals, and cable connectors.
3. Change the battery, if necessary.
4. Store the battery in a cool, dry place (do not expose to freezing temperatures).
5. Always keep the battery fully charged. Especially important to prevent battery damage when the temperature is below 32°F (0°C).

## 8.4 New Season Preparation

Before starting the mower after post season storage, the following service is required:

1. Clean the mower, removing trash and dirt accumulation.
2. Check engine oil and hydraulic oil levels.
3. Install fully charged battery and attach the battery cables.

## NOTE

*Always connect the positive (red) battery cable(s) before connecting the negative (black) cable(s).*

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# Commander Operator's Manual

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4. Fill the fuel tank(s) with fresh fuel. Run the mower at half speed for five (5) minutes, checking operation of steering control levers. Stop engine and check for oil leaks, loose fittings, and so forth.
5. Tighten any bolts that have loosened and verify all hair pins, cotter pins, and clevis pins are in place.

## **WARNING**

*At start of a new season always check that fresh oil has been added to the machine. If oil is drained at season's end and not replaced, engine damage will result.*

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6. Install all safety shields and review safety precautions listed in this manual.
7. Check and inflate tires to 8-12 psi (55-83 KPa).
8. Refer to engine manual for more information.

# Commander Operator's Manual

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# Commander Operator's Manual

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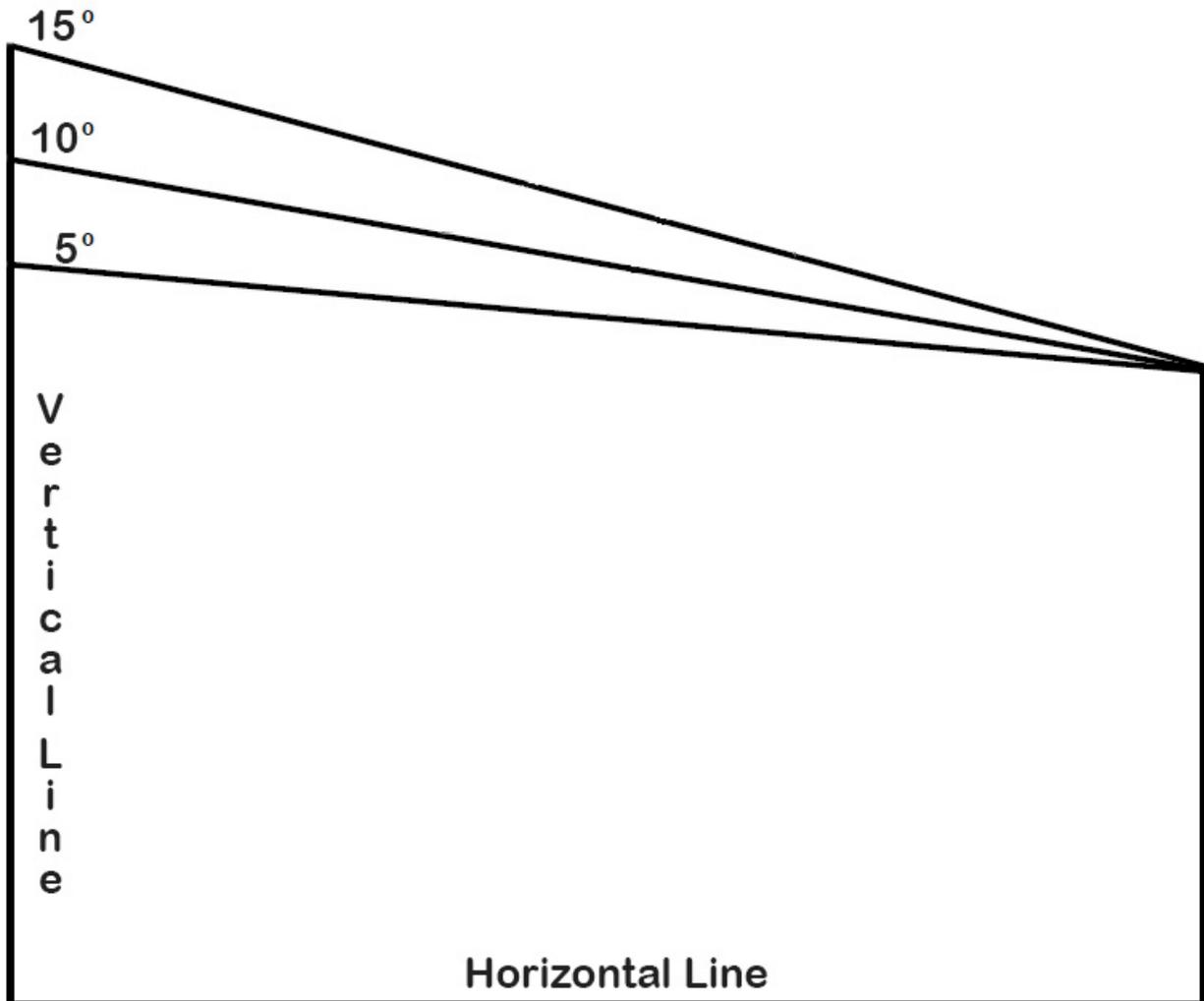
Konig Industries, LLC

[www.Mowhawk.com](http://www.Mowhawk.com)

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Brookston, TX 75421

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1. The mower may not be operated on slope exceeding 15 degrees.
2. Remove this page from the manual and hold at eye level.
3. Align the Vertical Line with a utility pole, building edge, or similar object.
4. Fold the page along the grade of the slope.
5. Do not operate the mower on a slope greater than 15 degrees.